NIEM-Maritime Exchange Model Summary

Vessel Information

ABOUT THIS DOCUMENT

Information sharing is about implementing services to move and manage the information required to execute our missions. The implementation of an information exchange service requires a valid common exchange model *and* a defined process for requesting and providing the information.

The Exchange Model Summary document provides information about both the exchange model *and* the exchange process used within the Maritime Information Sharing Environment (MISE). Contained in this document are the artifacts used to develop and document the exchange model, an example sequence of user and system actions that are the sharing process, and descriptions of the associated data exchange elements.

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INFORMATION EXCHANGE SEQUENCE

An information sharing process can be as simple as a direct, single service that requires no interaction and does not change. However, frequently the exchange process includes user interaction. An understanding of that interaction and the associated data for each step is required before the exchange service can be established. This sequence diagram is an example of a process that could be used.
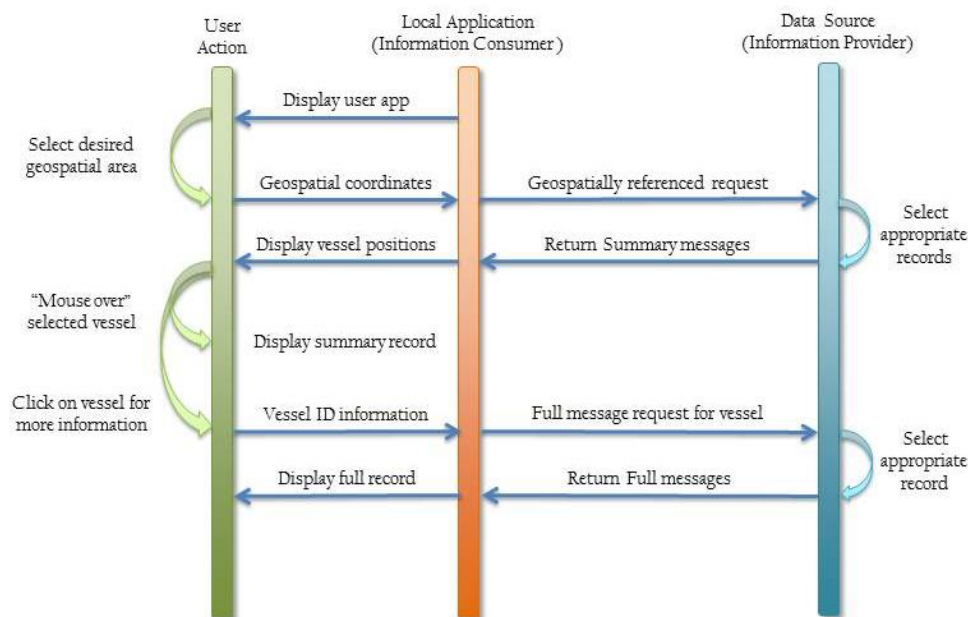

In this example, a user, using a local application, draws a box around a desired area on a geospatial display. The geospatially referenced request is sent from the information consumer to the information provider using an agreed upon request format. The returned message is a summary message for each of the vessels in the geospatial box.

The returned information is displayed on the users application display.
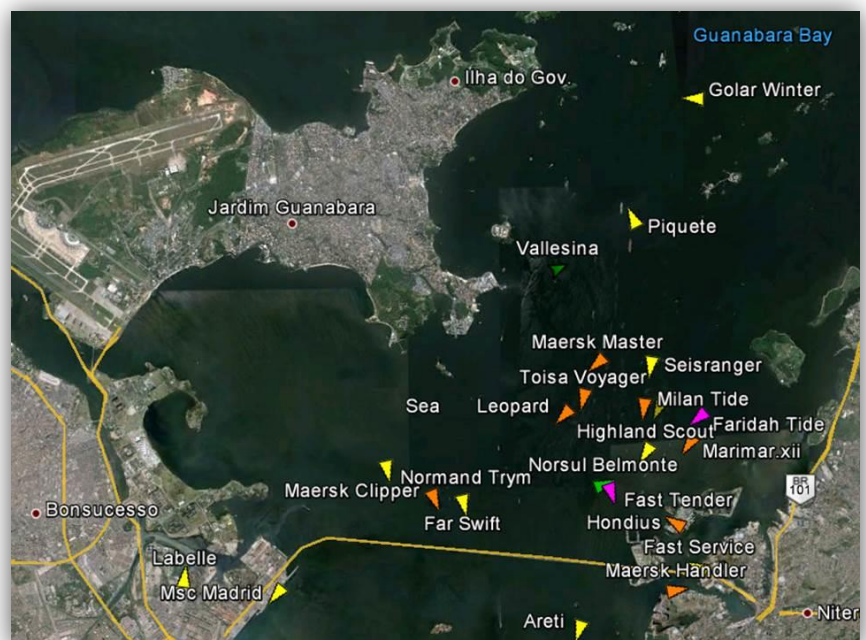
If the user mouses over on a specific vessel, a "baseball card" of the summary information is displayed.
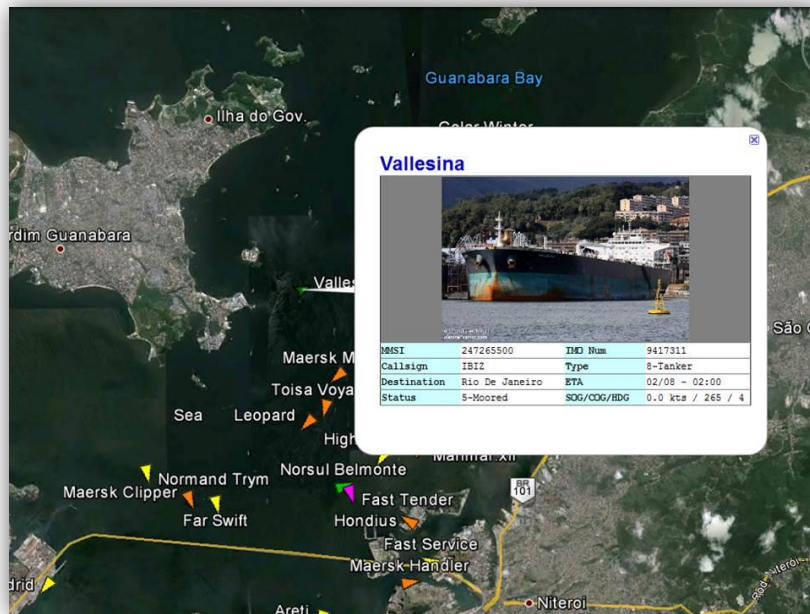
If the user clicks on a vessel, the vessel identification information is sent from the information consumer, via a previously defined request message format, to the information provider. The information service returns a full message for the vessel identified. The returned data set is received and displayed on the users application display.
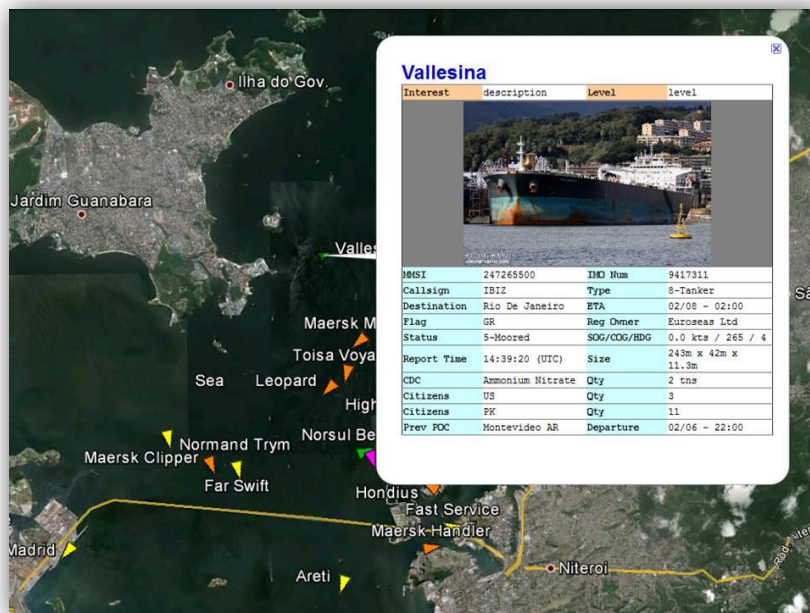
This sequence depicts a possible process; many others could be defined. The important point is that a process *is* defined and agreed upon *before* the service is implemented.

DEFINING EXCHANGE MODELS

NIEM—the National Information Exchange Model—is a community-driven, standards-based approach to exchanging information and is used by the MISE to define maritime exchange models. NIEM is organized by communities, or Domains. The NIEM *Maritime* Domain (NIEM-M) is sponsored by an inter-agency Maritime Domain Awareness (MDA) Executive Steering Committee (MDA ESC).

Within NIEM, there are several documents used to describe or define exchange models. One of those documents is the Information Exchange Package Documentation (IEPD).

IEPDs are a cornerstone document for MISE information exchanges. Each IEPD defines a specific exchange model or message. A unique IEPD called as Enterprise Information Exchange Model (EIEM) defines Basic Information Exchange Components (BIEC). BIECs are blocks of information that are common to multiple IEPDs.

The *Vessel Information* IEPD defines a Vessel Information message using the BIECs of *Vessel Characteristics*, *Vessel Identification*, and *Vessel History* from the Maritime EIEM.

IEPD materials are accessible and downloadable at www.mda.gov.
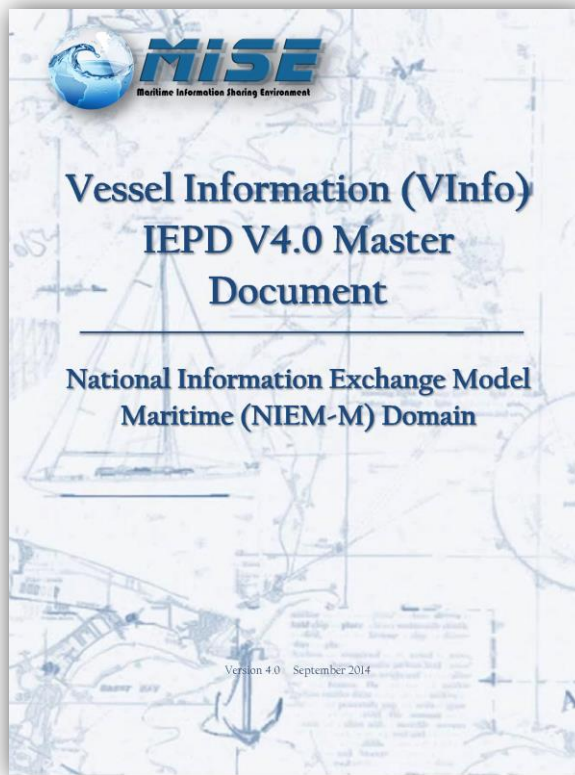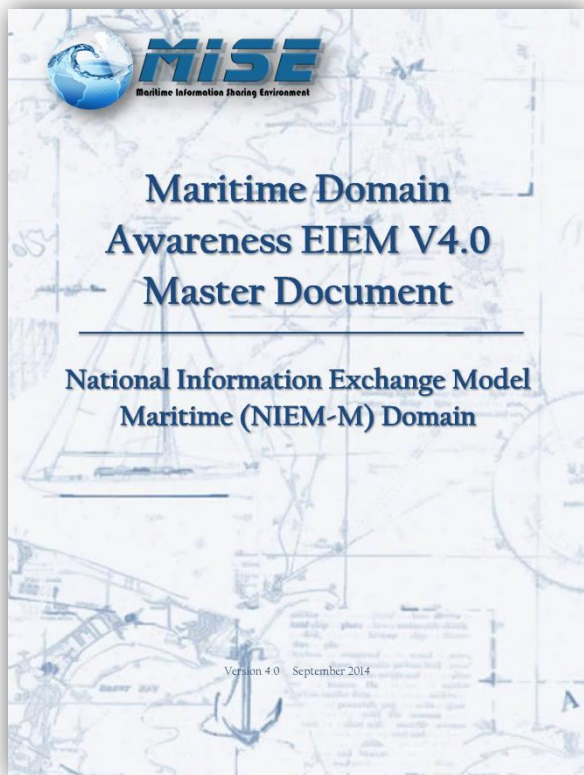
LOGICAL MODEL DIAGRAMS

XML messages from the IEPDs can be confusing and difficult to understand for readers without a technical background. To better describe the components of an information exchange, graphical representations of the data elements associated with the exchange model have are provided. Below is a legend to use as a guide for the subsequent logical diagrams.
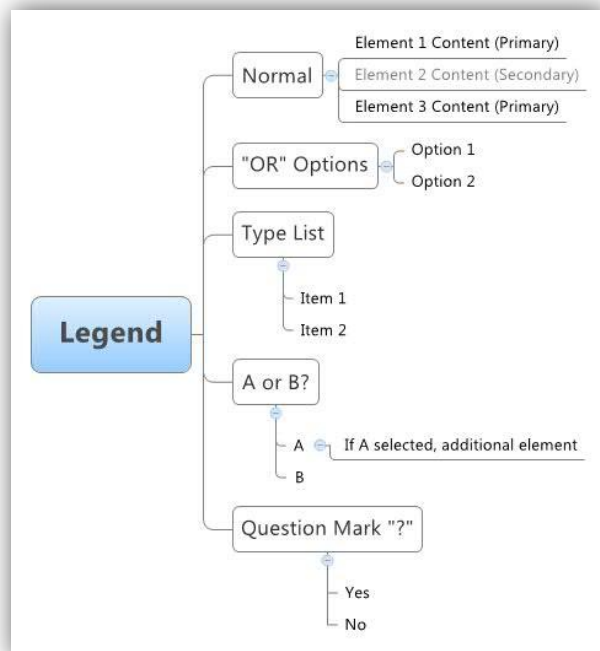
Normal - Data elements with sub-elements as branches that *contain* the data. Black sub-elements are "primary" and contained in both full and summary messages. Gray sub-elements are "secondary" and only contained in a full message.

"OR" Options - Data elements that identified the option to the user (e.g. search for vessel by position *OR* name). The option *contains* the data.

Type List - Data elements with a list of option choices. Unlike OR Options, the Type List choices *are* the data.

A or B? – Type Lists that asks user for additional information based upon the selection.

Question Mark (?) – Type Lists that are *only* yes or no answers.

EXCHANGE MODEL – BLOCK LEVEL

The logical data blocks for this IEPD are shown below. The blue block represents the IEPD and the white blocks represent a BIEC.
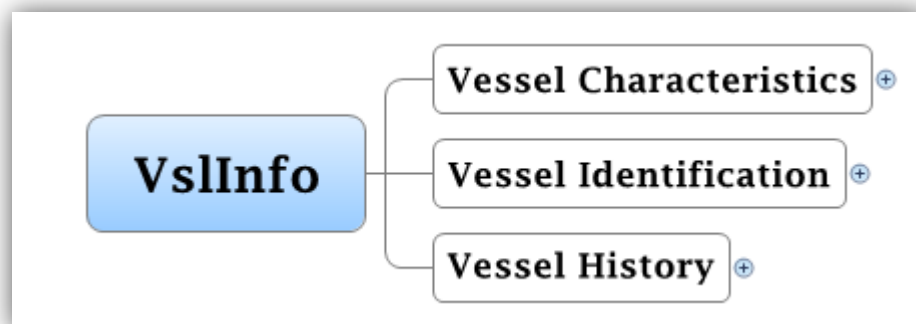
LOGICAL BLOCKS

The data elements in each logical block are shown below.
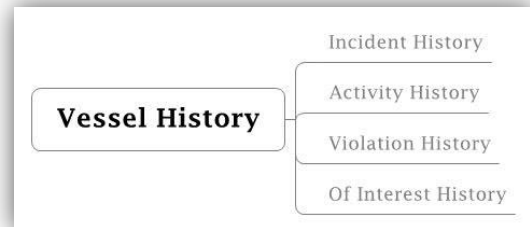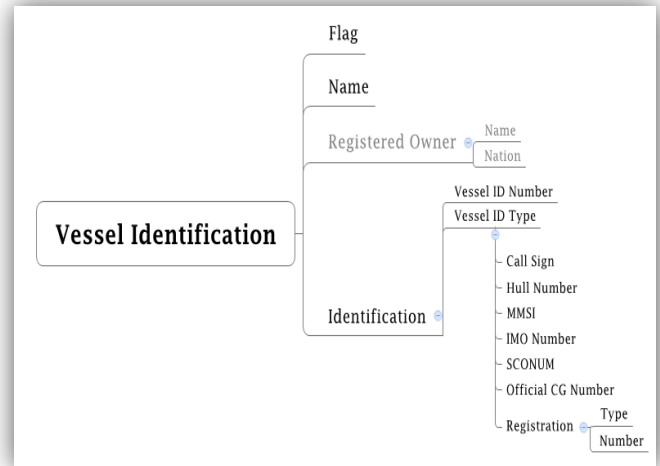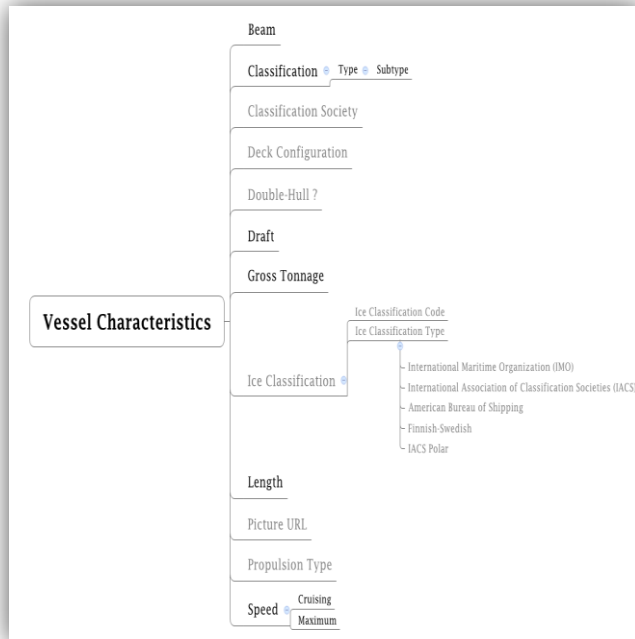
REQUEST/QUERY MODEL

Below is a graphical representation of the request/query model for vessel information. The yellow blocks on the right side show the methods used to request vessel information data. The yellow block on the left side shows the *Record Metadata* used to filter the resulting data.
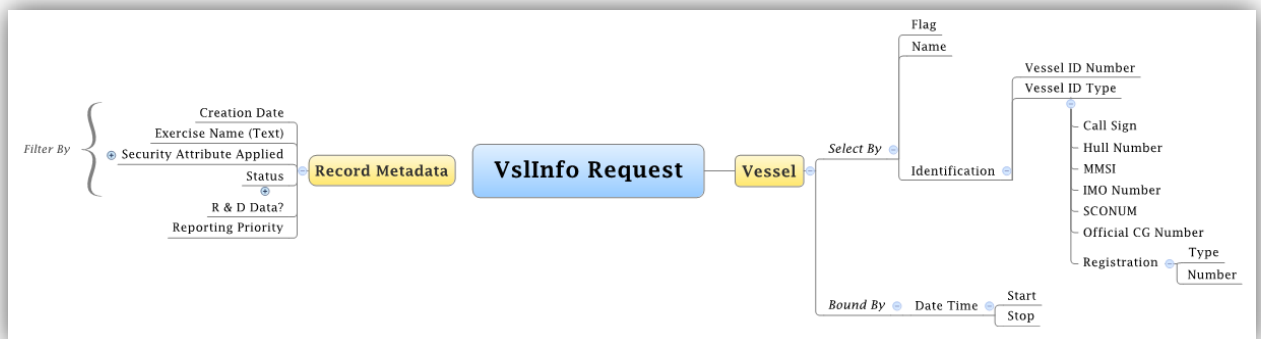
RECORD METADATA

The record metadata shown below is used for managing the message throughout the exchange process.

DATA ELEMENT DESCRIPTIONS

The following tables contain descriptions for the data elements for each data block.

VESSEL CHARACTERISTICS

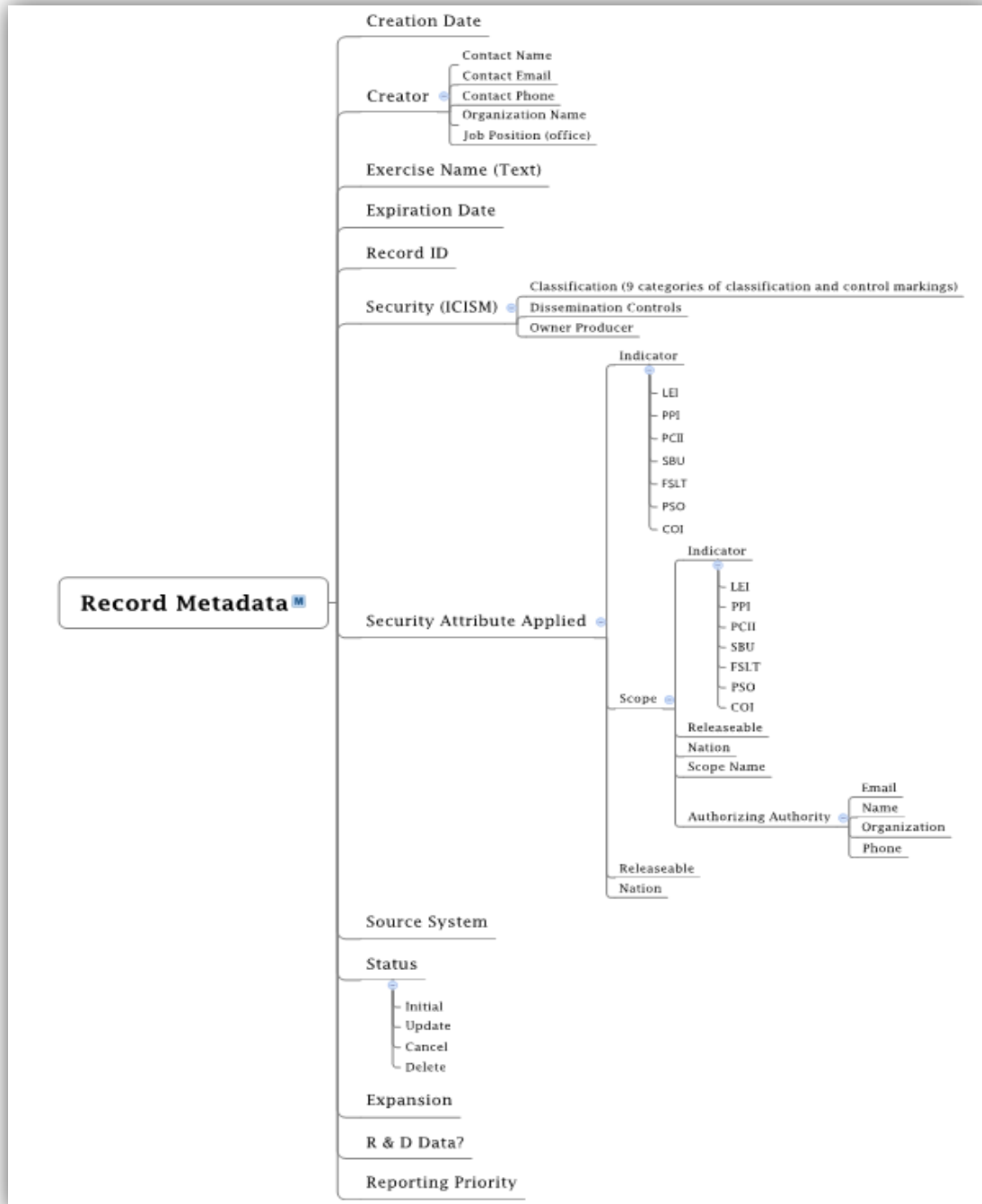| Common Name	Description
Beam	A measure of the beam (breadth) of a vessel
Classification	The vessel classification type and sub-type. Information includes: *Type* - The category or vessel class of a vessel • *Subtype* - The vessel sub-category or sub-class of a vessel
Classification Society	A name of a classification society for a vessel.
Deck Configuration	A description of the deck configuration of a vessel
Double Hull?	Does the vessel have a double hull?
Draft	A measure of the current draft of a vessel
Gross Tonnage	The Gross Tonnage (GT) of a vessel
Ice Classification	A vessel of higher ice classification. Information includes: *Ice Classification Code* - The code identifying the vessel ice class *Ice Classification Type* - The type or organization issuing the ice class. Types include: vessel • IMO - International Maritime Organization. • IACS - International Association of Classification Societies • ABS - American • Finnish-Swedish. • IACS Polar – A more specific class than IACS
Length	A measure of the overall length of a vessel
Picture URL	A URL of an image of a vessel
Propulsion Type	The vessel propulsion category of the vessel
Speed	The speed of a vessel. Information includes: *Cruising* - A measure of the cruise speed for a vessel *Maximum* - A measure of the maximum level of speed for vessel

VESSEL IDENTIFICATION

Common Name	Description
Flag	The national flag under which a vessel sails
Name	The name of a vessel
Registered Owner	The entity that owns a vessel. Information includes: *Name* - The name of the person that owns a vessel *Nation* - The name of the nation that owns the vessel

Identification	Unique identification attributes of a vessel are:
	Vessel ID Number - The number of a vessel
	Vessel ID Type - Vessels can be identified by the following information:
	
	• Call Sign - The call sign for a vessel
	• Hull Number - The hull number of a vessel
	• MMSI - Maritime Mobile Service Identity (MMSI) of a vessel
	• IMO - Number The International Maritime Organization Number (IMO number) of a vessel
	• SCONUM - The Ship Control Number (SCONUM) of a vessel
	• Official CG Number - An official United States Coast Guard Number (USCG Official Number) of a vessel
	• Other Registration - Other registration information of the vessel
	    o *Type* - Information about another, not otherwise specified registration for a vessel
	    o *Number* - Registration number of a vessel

VESSEL HISTORY

Common Name	Description
Incident History	A summary of activities of note in which crew or passengers have participated.
Activity History	A summary of activities of note in which a vessel has participated
Violation History	A summary of illegal activities in which the vessel has participated
Of Interest History	A list of Interest elements that contain previous interest in this vessel

METADATA

Common Name	Description
Creation Date	A date a document was created
Creator	Entity primarily responsible for creating the content of the resource. Information includes: *Contact Name* - The name of a person who is the contact for the document creator *Contact Email* - An electronic mailing address by which the document creator may be contacted *Contact Phone* - A telephone number by which the document creator may be contacted *Organization Name* - The name of an organization who is the document creator *Job Position (Office)* - Brief description of a position
Exercise Name	Exercise name
Expiration Date	A date a transmitted document expires
Record ID	A unique ID identifying a record
ICISM Marking (Security)	Security classification of data. Information includes: *Classification* - A single indicator of the highest level of classification applicable to an information resource or portion within the domain of classified national security information *Dissemination Controls* - One or more indicators identifying the expansion or limitation on the distribution of information *Owner Producer* - One or more indicators identifying the national government or international organization that have purview over the classification marking of an information resource or portion therein
Security Attributes Applied	Characteristics of a persona that defines a user in a particular role. Security Attributes include: *Indicator* - Indicates the security that must be applied to the record • Law Enforcement (LEI) • Privacy Protected (PPI) • Sensitive But Unclassified (SBU) • Protected Critical Infrastructure Information (PCII) • Federal/State/Local/Tribal/Territorial (FSLT) • Private Sector Only (PSO) • Community of Interest (COI) *Scope* - Indicates the security that must be applied to this record within the context of the named scope • Indicator – LEI, PPI, SBU, PCII, FSLT, PSO, COI • Releasable – Whether the data is releasable in the context of the names scope • Nation – The nations which the data can be released in the

	context of the named scope
	• Scope Name – Name of the scope in which the security and releasablity is modified
	• Authorizing Authority – Entity authorizing the use of the set of attached scope attributes on this metadata element. Includes the following information:
	o *Email* - The email of the authorizing authority
	o *Name* - The name of the authorizing authority
	o *Organization* - The organization of the authorizing authority
	o *Phone* - The phone number of the authorizing authority
	Releasable - Whether the data is releasable
	Nation - Nations allowed for release
Status	A status of a record that can be any of the following: *Initial* - New record *Update* - Change or update to an existing record *Cancel* - Cancelation of existing record *Delete* - Deletion of an existing record
Expansion	Additional information
Research and Development Data	True if the information in the record is for research and development , false otherwise
Reporting Priority	Numeric value representing how often this record is updated